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# THE INFLUENCE OF VITAL STATISTICS ON LONGEVITY

BY

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Secretary North Carolina Board of Health, Raleigh, N. C.



An Address delivered at the Sixth Annual Meeting of the  
ASSOCIATION OF LIFE INSURANCE PRESIDENTS  
At New York, December 5, 1912



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Vital statistics to increase longevity must be available as a remedy for the treatment of sick bodies politic—sick towns, sick cities, sick counties and sick States. *Applied* vital statistics, with all the emphasis on the qualifying term, is the most essential and powerful remedy for the improvement of the health of social organisms, for bringing about sanitary reform, for preventing disease, for postponing death and for adding years to the duration of the average life that we possess. It is the sole purpose of this paper to make good this last statement. To do so it is incumbent upon me to point out just how this remedy, applied vital statistics, acts upon sick towns, cities and States, or, if a more comprehensive but technical term be permitted, to point out the physiological action of applied vital statistics on a sick social organism.

Now, the first effect of applied vital statistics on a diseased body politic—a sick town, city, county or State—is to

## RESTORE CONSCIOUSNESS

I have never known a sick town, city, or community whose aggregate potential mind was conscious of its illness. Let me illustrate with concrete cases. However, I wish to emphasize that the concrete cases which I shall detail illustrate fundamental principles of general application.

*Case I.*—A city of 20,000 population, one of the best cities in my State, the health conditions of which are shown in charts Patient Z: Chart 2 and Patient Z: Chart 3. Were the people of that city conscious of the condition shown on the charts? Let's see. Five of the most representative and intelligent citizens of the city were called over the telephone and asked to answer two questions without requesting any explanations from their interrogator. One of the five was a college president, another a State official, another a practising physician, another a banker and the other one a leading merchant. The first question asked each of them, independently, was: What is your opinion of the health of your city? As if it were a grave sin against their patriotism to consider such a question for even a moment, they all unhesitatingly answered "good." The Second question, which immediately followed their answer to the first, was: How many people would you say died in your city last year? With some verbal sparring, with noticeable hesitation, all the five realizing that their answer to the first question presupposed ability to answer the second question, the answers came. Three said there were 60, one 100, and one 300 deaths a year. As a matter of fact there were 508 deaths, but 72 less than the sum of the guesses. These were representative citizens, and their answers to the questions propounded showed how unconscious the people of that city were of their real health situation.

*Case II.*—I was called in consultation by a board of aldermen and board of county commissioners to consider and advise with them regarding the effect on a county town's health of a small pool of water, covering, I suppose, a half acre of ground, and situated right over the municipal boundary line.

After looking over the pond in the morning and making a general sanitary survey of the town, I walked over to the local registrar's office to see how many people were dying and what they were dying from. At five o'clock I consulted with the Board of Aldermen, several physicians, and health officers and others. I called their attention to the fact that the small collection of water was but one very small item for consideration in their health situation; that malaria had caused very few deaths in their town, and it was doubtful if the pond had much to do with their malaria, as there were so many other breeding places for mosquitoes; that with a little ditching and kerosene oil (I went into details), the pond could be dismissed as a health menace; that whereas the pond was of little consequence, other conditions of health in their city were of grave

consequence; that, taking statistics from their own official, they had a death rate of 27.5 per thousand, which meant 12.5 people out of every thousand of their population died in *excess of the average* death rate that obtained throughout the United States; that for four thousand population this meant an annual unnecessary loss of fifty lives to their town; that even if they had a death rate of fifteen, some of the fifteen would be from preventable diseases, and, therefore, the fifty lives lost must necessarily be regarded as *excessive* preventable deaths; that their records showed a death rate from tuberculosis of three hundred and seventeen per one hundred thousand, instead of the average of one hundred sixty-seven; that their records showed a death rate from typhoid of seven and one-half times the average; that during the last winter their town had had its share of deaths from measles for sixty years; that this last fact meant one of two things: either an extremely malignant epidemic, the improbable explanation, or more probably inefficient quarantine, the probable explanation; that they were most inconsistent in having required a railroad that passed through the town to build an overhead bridge at a cost of \$18,000, because during ten years the railroad had killed, at a crossing, as many as ten people; that the interest on the original investment of the railroad, and the wear and tear of the bridge, would amount to at least \$1,500 per year, which they were forcing the railroad to spend to prevent one needless death; that while they were requiring the railroad to spend \$1,500 to prevent *one* death, they, the aldermen, were spending only \$150 to prevent *fifty* deaths.

My consultants were easily convinced that the puddle of water was insignificant as compared with their real health situation, of which they, until that meeting, were totally unconscious. I could cite other examples, but I have gone into details sufficiently to establish the principle that the first thing to do in treating sick social organisms is to restore consciousness.

The best way in which to administer the remedy of applied vital statistics to sick social organisms is in the form of charts. Those on the wall are some that I have used in discussing municipal health with the citizens of several North Carolina municipalities. When such facts as those shown on the charts fail to bring about favorable changes in the sanitary administrations of a sick municipality, the charts should be published—given to the papers. In this way community pride, where community intelligence is lacking, will be awakened through adverse outside criticism and results obtained.

The following tables were shown in the form of cloth charts thirty-six by thirty-six inches:

*Chart Demonstrating Unenforced Law Requiring Reporting of  
Certain Diseases*

PATIENT Z: CHART I

<i>Diseases</i>	<i>Cases Reported</i>	<i>Deaths</i>	<i>Actual Fatality</i>	<i>Average Fatality</i>
Tuberculosis .....	27	54	200%	10-25%
Typhoid Fever .....	48	11	23%	10%
Whooping Cough .....	13	10	76.9%	10%
Measles .....	31	5	16%	5%
Diphtheria .....	28	4	14%	8%

PATIENT Z: CHART 2

<i>Death Rates</i>	<i>Death Rates In Z</i>	<i>In Average City in the United States</i>
General .....	27.6	15.
White .....	25	16.5
Colored .....	40	26.2
Tuberculosis .....	270	160.3
Typhoid Fever .....	55	23.5
Diarrheal Diseases (under 2 yrs.) .....	215	100.8
Whooping Cough .....	50	11.4
Measles .....	25	12.3
Scarlet Fever .....	0	11.6
Diphtheria .....	20	21.4

PATIENT Z: CHART 3

<i>Causes</i>	<i>Total Deaths Occurring</i>	<i>Would Occur With Average Death</i>	<i>Excessive</i>
All Causes .....	508	300	208
White Population .....	326	208	118
Colored Population .....	280	112	168
Tuberculosis .....	54	33	21
Typhoid Fever .....	11	5	6
Diarrheas (under 2 yrs.) .....	43	19	24
Whooping Cough .....	11	2	8
Measles .....	5	2	3
Diphtheria .....	4	4	0
Scarlet Fever .....	0	2	Credit 2 lives



# PATIENT Z: CHART 4

## *Ages of Decedents*

<i>Percentages of Deaths</i>	<i>Case I</i>	<i>For United States</i>
Children under 15.....	30.5	30.5
Wage Earners, 15-50 .....	32	28
Above 50 .....	37.2	41.4
Above 60 .....	23.4	31.3

# PATIENT Q: CHART 1

<i>Death Rate</i>	<i>In Q</i>	<i>In Average City in United States</i>
General .....	22.8	15
White .....	16	16
Colored .....	37	26.2
Tuberculosis .....	329	160.3
Typhoid Fever .....	211	23.5
Diarrhœas (under 2 yrs.) .....	282	100.8
Whooping Cough .....	82	11.4
Measles .....	35	12.3
Scarlet Fever .....	11.7	11.6
Diphtheria . . . . .	47	21.4

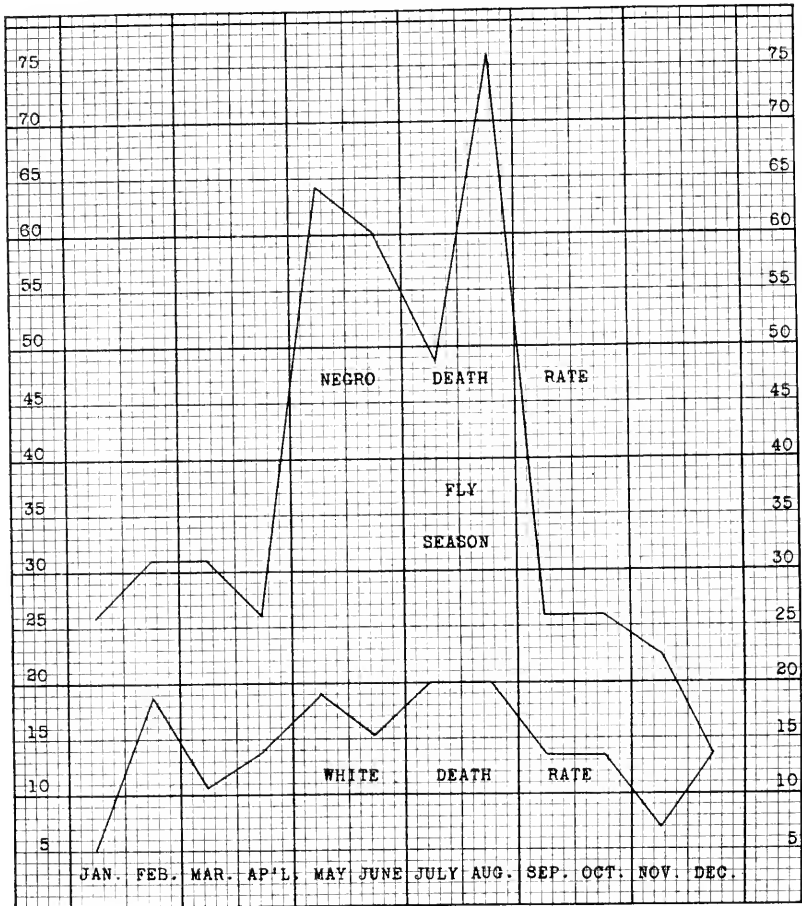
Following closely upon the first action of applied vital statistics, the second effect—

## THE INAUGURATION OF SANITARY REFORM

begins to be manifest. In *Case I* mentioned above, a health organization had been at work for more than a year without producing tangible results when the facts shown on charts, Patient Z, were made public. One explanation after another was then advanced by the local press to explain why conditions were different in that town from other towns. For example, the first explanation was that in that city there were a number of colleges, and people retiring from business brought their children there to be educated—in other words, that the senile population of that city was larger than that of the average city. Then Chart 4, Patient Z was prepared, and that explanation set aside. Finally, when the defense had exhausted its excuses, those advocating sanitary reforms were asked if they knew any reason why the city of blank should be more unhealthy than the average city. Then attention was called to Chart 1, Patient Z, and the defense was asked if they could name a more fundamental or important health law than that requiring the reporting of con-

PATIENT Q: CHART 2

*Seasonal Variation in Deaths by Races*



tagious and infectious diseases by which the extension of the infection could be circumscribed. Of course they could not. Chart I makes it perfectly evident that that law was absolutely disregarded. Attention was then called to the violations of the milk ordinance. Of 190 bacteriological examinations the preceding year 90 were found bad and absolutely nothing done. Other unsanitary conditions explanatory of the high death rates were also pointed out. Within eight months of the publication of these facts that city has let a contract for a thoroughly modern municipal owned abattoir, has employed a graduate veterinarian of experience for his entire time as a food inspector, has extended its sewer connections and has enlarged the district in which fly-proof sanitary privies are required.

In case two, after the consultation above referred to, the municipal authorities ordered the town clerk to make requisition of the State Board of Health for sufficient copies of the Monthly State Board of Health Bulletin to distribute them each month to every family in the incorporate limits of the town. The county authorities directed their health officer to select the names of from 1,000 to 2,000 of the best citizens of the county and have their names placed on the mailing list for the health literature distributed by the State Board of Health. At present I regard that county as one of the most promising in my State for sanitary progress. "Ye shall know the truth and the truth shall make you free."

The third effect of our remedy, applied vital statistics, is nothing more than a consummation of the second effect—

#### A RESPONSIBLE HEALTH OFFICER

As a rule, and any way ultimately, an efficient health officer will be required to give his entire time to his official duties. It is just about as impossible for a health officer to look after his own interest in private practice and the public's in health work as it is for a man to serve both God and mammon. The great need of the country, and especially of the South, is the whole-time health officer. But any way, whether our local—county or municipal—health officer is whole time or not, he will be, when employed as an effect of applied vital statistics, responsible. Here comes in the fourth and last and most important action of our remedy, namely, its effect in furnishing

#### AN EFFICIENCY STANDARD OF HEALTH WORK

Every health officer must stand squarely on this platform: Health work that is worthy the name means the prevention of disease; the prevention of disease means the prevention of deaths; the prevention

of deaths means one of two things: either the retention of an average death rate or the reduction of a high death rate. Applied vital statistics, therefore, furnish the only check the people can have on their health officer, the only means by which they can discriminate between the true and the counterfeit. If a health officer has been employed for some time, say two or three years, and can show no influence on the death rates of his jurisdiction it is time to make a change in the health office.

The fourth effect of applied vital statistics, the elimination of the unfit from health service, is especially valuable in furnishing central health authorities, like State boards of health, the only means of control, in accordance with democratic principles of government, of local health officers—county and municipal. Most State boards of health are provided with publicity means in the form of monthly bulletins. If, at the end of each registration year, the counties of the State and the municipalities of the State are tabulated in the order of the lowest to the highest death rate and this tabulation published, a restoration of health consciousness among the sick counties, those in greatest need of and most amenable to sanitary reform, will be effected; if, in the same issue of the bulletin, the county and municipal health officers are published, in tabulated form, in the order of those with the biggest influence on death rates, that is the best health officer, to those with least or no effect on death rates, the worst health officer; if the photographs of one or two of the best health officers in the State, those with the greatest reduction in death rates, are published in this bulletin, and a description of the methods by which they accomplished their results also published, a high standard of efficiency for health officers will be popularized and the people will demand that it shall be met.

I recognize that this scheme of health administration is strongly biased by considerations arising from the standpoint of State health administration and that it neglects the important details and methods by which the local health officers—municipal and county—are to effect the reduction of death rates. This defect is only apparent and not real, as many methods will be experimented with by as many local health officers, and those that are worthless in time rejected and those that produce results retained.

In conclusion, the physiological effect of applied vital statistics on sick social organisms is (1) to restore civic health consciousness, (2) to enforce sanitary reforms where they are most needed, (3) to result in the employment of responsible health officials, and (4) to apply that great fundamental law of nature, the survival of the fittest, to the selection of health officers.



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